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ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

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Memorandum

To: **LaDonna Turner, Site Assessment Manager**
Technical and Enforcement Branch
U.S. Environmental Protection Agency, Region 6

From: **Dana Bahar, Manager, Superfund Oversight Section**
Ground Water Quality Bureau, New Mexico Environment Department

Date: **August 16, 2010**

Subject: **Pre-CERCLIS screening assessment of Bucky mine (Grants Mining District), McKinley County, New Mexico: further action under CERCLA recommended**

Site name Bucky mine
Alternative names Section 14, Jeep No. 1-6, Buckey, Buckly, Bucky No. 1
Street address not applicable **City** not applicable **State** New Mexico
Zip code not applicable **County** McKinley
Latitude 35.441 **Longitude** -107.859 **TRS** T14N, R10W, s. 14SE

Site physical description:
The Bucky minesite ("Site") currently comprises a soil-covered area which marks the location of the 6 ft by 4 ft mine shaft (see P1), another smaller open shaft that is outfitted with an air supply pipe and hose from an earlier operational period (see P2), numerous piles of presumed waste materials, and scattered debris (see P3).

Site identification:
The site is one of numerous legacy uranium sites within the Grants Mining District.

Site summary:
Through 1970, the mine produced 161,625 tons of ore from the Westwater Canyon member of the Morrison Formation, from which 770,893 pound of uranium oxide at an average grade of 0.24%, and 241 pounds of vanadium oxide, were recovered (Ref. 1, p. 2, 4). The actual

amount of additional production through 1991 is documented to be between 200,000 and 2 million pounds of uranium oxide (Ref, 1, p. 3, 4); additional ore reserves may still exist (Ref, 1, p. 4, 5). The depth of the ore is estimated to be 350 to 400 feet (Ref, 1, p. 5), which was above the water table (Ref. 2).

Site reclamation actions that were completed in November 2007 include covering of the mine shaft with an overturned ore bin set 15 ft below grade and above an 8 ft square by 2-ft thick concrete cap; the ore bin was then covered by rubble topped with soil to grade (Ref. 3). Additionally a remaining building, hoist, cable, and other miscellaneous materials were removed as part of these activities (Ref. 4). The minesite is currently involved in permitting for the Mining Act Reclamation Program (Ref. 5). Neutron Energy, Inc. currently is in negotiation to obtain surface rights from Southwest Resources, Inc. Mr. James Bonner has staked mineral claims in the area that include the Site (Ref. 6).

Targets:
The Site is located approximately 600 ft west of ephemeral Martin Draw, which is a tributary of Arroyo del Puerto.

Well records from the New Mexico Office of the State Engineer that are located within a four-mile radius of the Site are shown in the table following (Ref. 7).

Site ownership and Potential Responsible Parties:
The mine was operated by Holly Minerals from 1957 until 1958. The See-Tee Mining Company operated between 1958 and 1965. The mine was operated by Hydro-Nuclear in 1972. From 1978 through 1980, and in 1982, Cobb Resources controlled the Site (Ref, 1, p. 2, 3; Ref. 8). Currently the surface is privately owned (Ref. 9); the U.S. Bureau of Land Management controls the mineral estate (Ref. 10).

File review:
Files that were reviewed for this assessment are listed below.

Site reconnaissance:
Personnel from the New Mexico Environment Department and New Mexico Energy, Minerals and Natural Resources Department visited the Site in the company of Mr. George Lotspeich (president of Southwest Resources, Inc.) and personnel from Neutron Energy, Inc. on July 29, 2010. All gamma readings shown on the figure accompanying this report were made with a Ludlum 14-C analog scintillometer (serial number 194209) with an uncollimated Ludlum 44-2 gamma detector (serial number PR241278), for which readings are recorded in counts per minute (“cpm”). Contact readings from this instrument at this Site ranged from 1800 cpm to 9000 cpm.

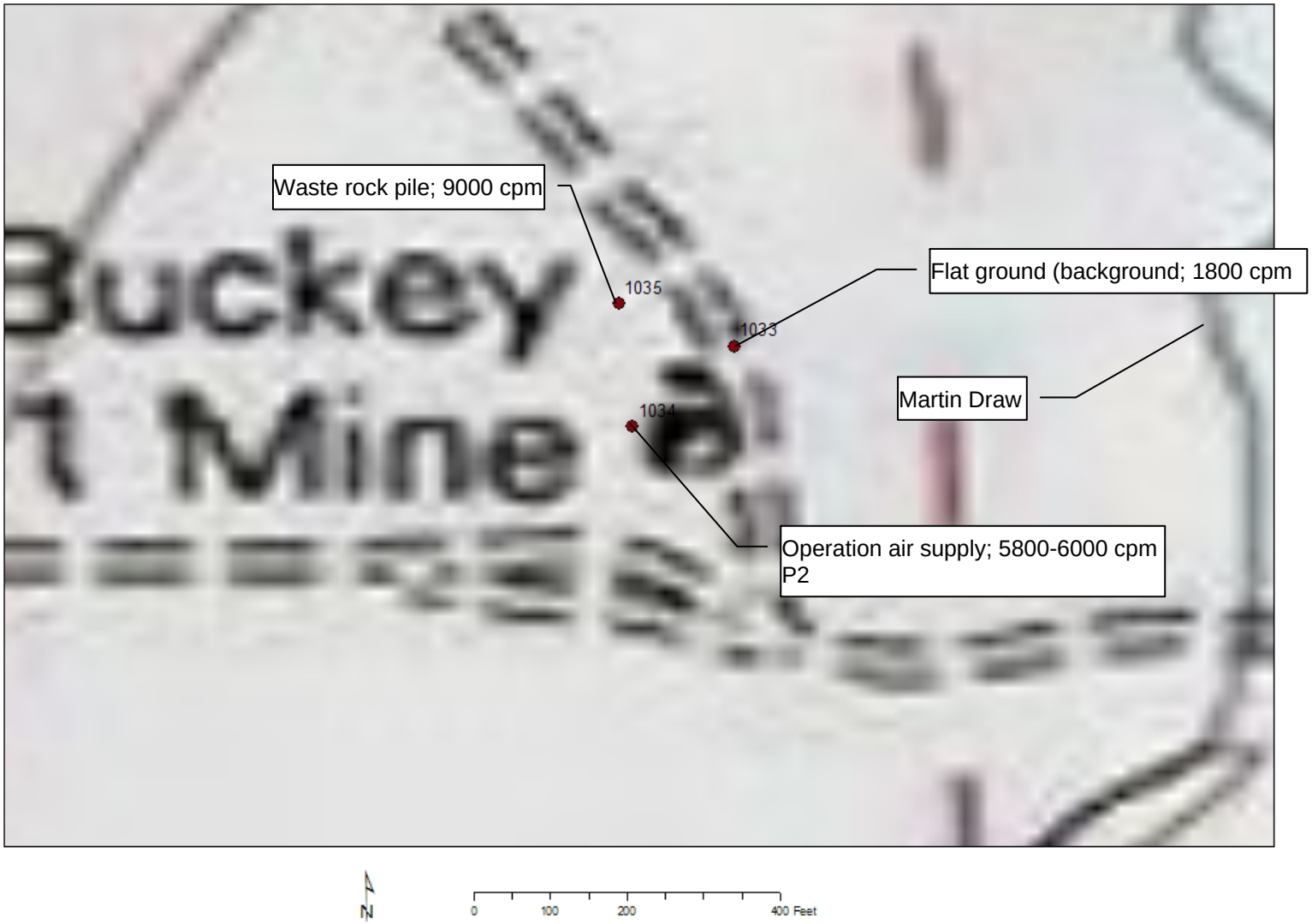
Distance from Site (miles)	OSE record number	Owner's last name	use	finish date	depth well (ft)	depth to water (ft)	casing diameter (in.)	yield (gpm)
0.5 – 1.0	B 00372	SABRE-PINON CORPORATION	MIN	09/12/1956	796	0	8.63	75.0
1.0 – 2.0	B 00362	RIO ALGOM MINING LLC	MIN	11/30/1956	3093	0	10.75	475.0
	B 00363	RIO ALGOM MINING LLC	MIN	04/30/1956	745	0	4.5	20.0
	B 00366	RIO ALGOM MINING LLC	MIN	12/31/1955	760	0	4.5	10.0
	B 00371	SABRE-PINON CORPORATION	MIN	08/25/1956	752	0	8.63	100.0
	B 00373	RIO ALGOM MINING LLC	MIN	12/31/1956	1003	0	13.38	90.0
	B 00994	RIO ALGOM MINING LLC	MIN	09/18/1958	857	0		
	B 00994	RIO ALGOM MINING LLC	MIN	01/02/1958	827	0		
2.0 – 3.0	B 00522	UNITED NUCLEAR-HOMESTAKE PTNRS	MON	02/07/1978	70	0		
	B 00522	UNITED NUCLEAR-HOMESTAKE PTNRS	MON	02/07/1978	70	0	5.0	0.0
3.0 – 4.0	B 00143	(b) (6)	DOM	07/18/1960	90	60		
	B 01246		STK	04/29/1992	1200	700	6.63	100.0
	B 01558		STK	03/19/2004	800	660	5.0	10.0

MIN -- MINING OR MILLING OR OIL
MON -- MONITORING WELL
DOM -- 72-12-1 DOMESTIC ONE HOUSEHOLD
STK --72-12-1 LIVESTOCK WATERING

Recommendation:

Site reconnaissance and characterization under CERCLA is recommended to determine the existence and extent of radiological readings in excess of Site background to assess threats to human health and the environment. Additionally, the Site reconnaissance should assess any physical features, such as the remaining shafts, debris, or exploration drillholes, which may pose safety hazards to human trespassers or livestock. Investigation of sediments in surface water drainages originating or crossing this Site, as well as in Martin Draw, also is recommended to assess the potential occurrence of impacts from dispersal of waste materials that have been left on-Site.

Currently, the existence of regional impacts from legacy uranium sites to the ground water system has not been determined. Ground water impacts from “dry” mines such as this Site initially would impact the alluvial ground water system through leaching of on-site waste materials and ore stockpiles. Such impacts, if they exist, predominantly may be localized to alluvial ground water in the vicinity of the Site. Alternatively ground water impacts may be more widespread, contributing to the overall potential degradation of the alluvial ground water regionally, as well as potentially to impacts to ground water in underlying bedrock aquifers. A generalized investigation of “dry” former uranium mines within the Grants Mining District is recommended as part of the characterization of ground water quality in the Grants Mining District.



Observation from 07/29/2010 Site reconnaissance of Bucky minesite

P1: Site of Bucky mine shaft

P2: Air supply shaft and line

P3: Waste materials on Bucky minesite

1. McLemore, Virginia T. and William L. Chenoweth, revised December 1991. "Uranium mines and deposits in the Grants district, Cibola and McKinley counties, New Mexico." New Mexico Bureau of Mines and Mineral Resources Open-file report 353.
2. New Mexico Energy, Minerals, and Natural Resources Department, January 2009. "Production method and surface ownership of abandoned uranium mines (AUM) in relation to water wells: Ambrosia Lake sub-district." Map.
3. Domenici, Pete V. Jr., December 20, 2007. "RE: Director's order: Section 14 mine, File No. MK019PR; Reclamation Report." Letter to Mr. Holland Shepard, New Mexico Energy, Minerals, and Natural Resources Department.
4. Domenici, Pete V. Jr., February 1, 2008. "Re: Section 14 shaft closure." Letter to Mr. Chris Eustice, New Mexico Energy, Minerals, and Natural Resources Department.
5. Pfeil, John (New Mexico Energy, Minerals, and Natural Resources Department), July 20, 2010. "RE: Request for update." Email to David L. Mayerson (New Mexico Environment Department).
6. U.S. Bureau of Land Management, accessed July 20, 2010. Geocommunicator (accessed by http://www.geocommunicator.gov/GeoComm/index.shtm).
7. New Mexico Office of the State Engineer. "May_06_wells." Shapefile.
8. LucasKamat, Susan (New Mexico Energy, Minerals, and Natural Resources Department), June 11, 2010. "RE: Request for information." Email to David L. Mayerson (New Mexico Environment Department).
9. New Mexico Environment Department, July 20, 2010. Grants U belt project notebook.
10. Lucas-Kamat, Susan (New Mexico Energy, Minerals, and Natural Resources Department), July 20, 2010. "RE: Request to accompany MMD on mine reconnaissance." Email to David L. Mayerson (New Mexico Environment Department).